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Vol. 5, Part 6. 15th June, 1936

THE

PROCEEDINGS

OF THE

ROYAL ENTOMOLOGICAL SOCIETY

OF

LONDON

Series B.

TAXONOMY

(being the continuation of Stylops)

LONDON:
PUBLISHED BY THE SOCIETY AND
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A NEW GENUS OF STREPSIPTERA *

By K. G. Blair, D.Sc., F.R.E.S.

(*British Museum, Natural History.*)

The material forming the basis of this paper has been entrusted to me by Sir Guy Marshall, C.M.G., Director of the Imperial Institute of Entomology, to whom it had been sent by the collector, Mr. T. W. Kirkpatrick. Mr. Kirkpatrick is much to be congratulated upon his success in finding all stages of the insect, thus enabling it to be more completely described than almost any other genus in this interesting group.

Corioxenos gen. n.

♂ (figs. 1, 4). Head strongly transverse; antennae 5-jointed, approximate at base, inserted some distance from the eyes; first two joints short and simple, 3rd and 4th produced each into a long branch, 5th † as long as the branches of the two preceding; mandibles apparently wanting; maxilla single-jointed with palpus of one joint about three times as long. Wings with median vein forked distally, the branch detached; two anal veins, the first wanting, the second complete, the third incomplete lying close to the inner margin. Tarsi slender, 4-jointed, basal almost as long as the rest together, 4th very short, bilobed, and lamellate beneath. Last abdominal segment long, deflexed, hollowed above for the reception of the aedeagus.

♀ (figs. 2, 3). Larviform, with no pupal state; cephalothorax elongate, distinctly segmented, asymmetrical, recurved on ventral surface of abdomen and projecting from the body of the host. One pair of spiracles towards the base. Head short, narrower than the prothorax; the latter with a pair of lateral knob-like projections; between these and the front margin is a large subtriangular window of thin transparent membrane. Abdomen sack-like, the first segment sclerotised and united with the cephalothorax; a ventral, feebly chitinised band showing 7 segments, segments 3 to 6 each with a median fovea near posterior border (? the openings of the genital tubes).

Host : Heteroptera; Pentatomidae, subfam. Pentatominae.
Genotype, *C. antestiae* sp. n.

Corioxenos antestiae sp. n. Figs. 1–7.

Characters as for the genus.

Host : *Antestia lineaticollis* Stål, a pest of coffee.

Habitat : Tanganyika : near Moshi, Lyamengu, on the slopes of Kilimanjaro; 4,200 ft.; ii.1935 (*T. W. Kirkpatrick*).

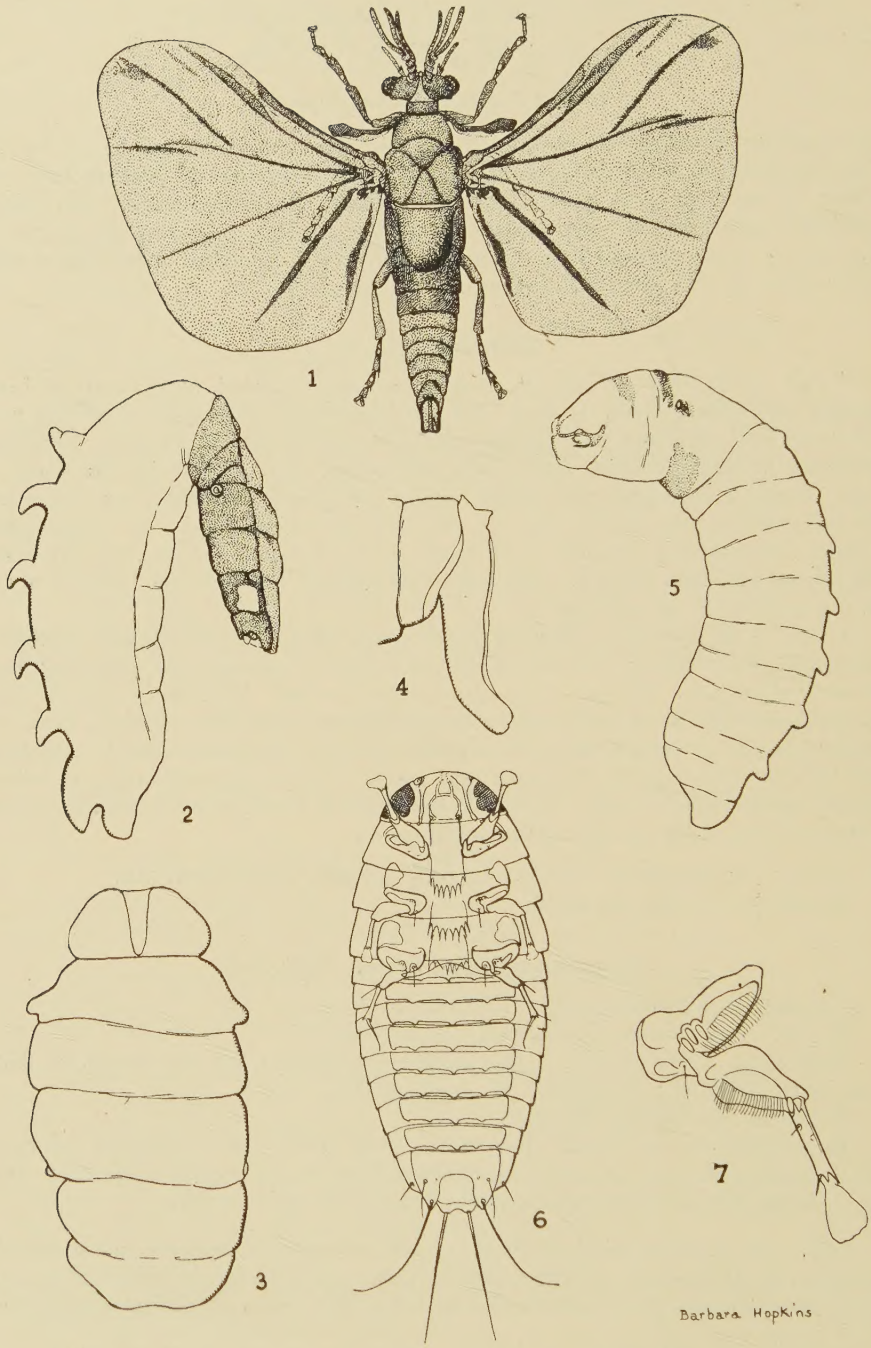
Types in the British Museum.

In addition to the tarsal characters noted above the 3 elongate joints of the ♂ tarsi, which are densely and finely pubescent, have each a circular clear space before (basal joint) or about the middle of their length.

♂ *larva* (fig. 5). Sausage-shaped, white and soft, the thoracic segments curved strongly ventrally: head with a narrow median chitinous plate expanded laterally behind and in front, the anterior expansion forming a somewhat anchor-shaped process with dorsal arm short and

* If this group of insects be considered, as here, an order, they cannot be Coleoptera. If they be considered, as in the Zoological Record, Coleoptera they form the family Stylopidae.

† I see no trace of division into 3 as in *Triozocera*.



FIGS. 1–7.—*Corioxenos antestiae* gen. et sp. n. 1. ♂; 2. ♀; young, body not yet distended with ova; 3. cephalothorax of ♀ (dorsal view); 4. apex of abdomen of ♂ (lateral view); 5. larva, ♂; 6. first stage (triungulin) larva; 7. intermediate leg of same.

stout, reaching to the posterior margin of the head, the ventral arm long and recurved; in the opening is a stout conical well-sclerotised mandible. Thoracic segmentation indistinct; prothorax without chitinised plates, mesothorax with a transverse dorsal plate extending nearly to the lateral line, its edges ill defined; metathorax with a somewhat similar dorsal plate and a broad ventral plate, leaving a considerable gap between them; near the lateral edge of the dorsal plate on each side is a spiracle, the opening with well-defined black edges, with a sclerotised tube leading inwards, this enclosed in a subglobular feebly sclerotised chamber. Abdominal segments cylindrical, sub-equal, with a midventral band feebly sclerotised showing 8 segments, while dorsally each is produced into a subconical backward-sloping fleshy prominence; these increase slightly in size until the 8th, which is much larger and forms the terminal portion of the body.

♂ *pupa.* On pupation the larval skin remains intact, but the body is retracted from the fore part, which becomes more sclerotised. It is this part that is thrust out from the body of the host. The pupa lies with the head in the second abdominal segment of the larval skin.

As the imago matures the pupa assumes a dark colour, the dorsal part of the abdomen being the last to change. I am unable to find any 5th tarsal joint even in this stage.

♀ *larva.* As there is no completed metamorphosis and no pupal state the mature larva becomes the functional female, unless the withdrawal of the body-contents from the cephalothorax, which presumably takes place after the latter has been thrust outside the dorsum of the host, be taken as marking the transition from the one to the other (*cf.* the pupation of the male larva).

The partly grown larva, with cephalothorax only half as long as that of the mature larva (or ♀) differs from the latter in having this portion less sclerotised and but little narrower than the abdomen, less flattened dorsoventrally and but slightly deflected ventrally, and the ventral band of more heavily chitinised tissue is wanting.

The less complete sclerotisation of the cephalothorax of the young larva allows of comparison with that of the male larva; thus the anterior portion of the median band of the head and its lateral prolongation can be traced, the latter extending to, and forming the anterior border of the clear "window," and enclosing the mandible in its ventral curve.

1*st stage or triungulin larva* (figs. 6, 7). Blackish, subelliptical, head fitting closely to prothorax; mandibles attached anteriorly and applied closely to the underside of the head. Thoracic segments longer than the first eight abdominal segments. Tergites of abdominal segments recurved ventrally at sides; ventrites much narrower than the body, their posterior edges armed with five small teeth or knobs; the 9th segment longer, the tergite with a small bristle on each side, the ventrite with a deep, subquadrate emargination, each lobe with a long seta near apex and a short one near base; 10th tergite in the form of a narrow transverse piece bearing a pair of long terminal setae. Legs well developed, anterior and intermediate pairs with tarsal empodia, the tarsi of the posterior pair long and slender, subsetiform. Thoracic segments with ventral plates between the coxae sharply dentate along the posterior edge.

Parasite and host. The cephalothorax of the parasite is exserted on the dorsal surface of the abdomen of the host through the soft membrane between the first and second segments, and is there bent backwards so as to lie closely upon the surface of the abdomen. The ♀ parasites are always near the side margins beneath the base of the folded wing, the ♂ parasite in or near the middle. Most often there is a ♀ on each side, though sometimes on one side only, and not more than one on each side, though other larvae may be present within the body. There is usually only one ♂ present, sometimes none and occasionally two. The female hosts are more regular with a ♀ parasite on

each side and one (or 2) males in the middle. The male host, probably on account of the rather smaller body, is apt to have a deficiency. Thus out of 20 bugs :—

Of 11 ♀♀ 9 had 1 ♀ each side, 6 with 1 ♂.
3 ,, 2 ,,
1 ,, 1 ♀ on right with 1 ♂.
1 ,, 1 ,, ,, left ,, 1 ,,

Of 9 ♂♂ 4 had 1 ♀ each side, 1 with 2 ♂.
2 ,, 1 ,,
1 ,, 0 ,,
2 had 1 ♀ on right 1 ,, 1 ,,
1 ,, 0 ,,
3 had 1 ♀ on left side, 2 with 1 ♂.
1 ,, 0 ,,

Further larvae may be found within the body, but probably never attain maturity. The distended abdomen of the female parasite occupies the greater portion of that side of the abdominal cavity. In most of the bugs examined the contents of the parasites had been discharged but in some of the parasites eggs or triungulin larvae were found. In only one case was the male pupa found within the larval skin. No eggs were found in any female host, and indeed the almost complete occupation of the abdominal cavity of the host by the parasites would seem to ensure complete sterilisation.

Systematic Position.

♂. In tarsal structure, apart from the lack of a 5th joint, the new genus closely approaches *Triozocera*, but differs from all other genera placed by Pierce in the Mengeoidea in the short 4th joint as well as in the lack of a 5th. In the formation of the head and of the antennae (except that these are only 5-jointed), in the lack of mandibles, as also in the thoracic structure, the prescutal lobe of the metathorax meeting the scutellum between the lobes of the scutum, it also exhibits close affinity with *Triozocera*, while in neuration it only differs in the anal veins, the first, reduced in *Triozocera*, being wanting in *Corioxenos*. If importance be attached to the structure of the tarsi rather than to the presence or absence of the 5th joint as in Pierce's keys, the close association of these two genera would seem to be undoubted. Whether, however, these are correctly placed with *Mengea* is doubtful. The tarsi in this genus and in *Eoxenos* Peyerimhoff (= *Iberoxenos* Bolivar), have 5 joints, all elongate, the thoracic construction is somewhat different, while the freely mobile female of the latter indicates a very much more primitive condition and would preclude any close association with the new genus. The Xenoidea, to which it would fall in Pierce's keys on account of the 4-jointed tarsi, differ widely in the form of the tarsi, of which the joints are short, broad and lobate, as well as in antennal structure and in wing neuration.

♀. In the form of the cephalothorax of the completely larviform female it shows affinity only with the Callipharixenidae, of which the male is unknown, and like them is parasitic upon Heteroptera, but differs from them in the small head, which does not embrace the fore part of the prothorax, in the asymmetry of the cephalothorax, in the possession of only one pair of prominent spiracles, in the structure of the 1st-stage larva, and in the host belonging to another subfamily, though of the same family, of the Heteroptera.

Whether these differences are too great to allow of its being included in the same family is, in the absence of the male of *Callipharixenos*, perhaps a doubtful point, but in any case it is more closely related to this family than to any other of which the female is known and may perhaps provisionally be placed here.

It might be expected that the 1st-stage larva would help to throw light upon some of these points. But the triungulin larva of the CALLIPHARIXENIDAE, which I should expect to find closely similar, shows some important points of difference, including the tarsi, which are similar on all three pairs of legs and trisetose (*i.e.* more truly triungulin in form), the single pair of long terminal setae, and the straight posterior border of the ventral abdominal plates. The triungulin of *Corioxenos* resembles that of *Eoxenos* in general form, in the structure of the legs and in the ventral thoracic plates (though differing in detail in all these organs), as also in the armed posterior border of the abdominal sternites and in the additional pair of long posterior setae. The host of *Eoxenos* is so far unknown; the form of the female, however, would seem to preclude any close relationship with *Corioxenos*.

With the 1st-stage larva of *Pseudoxenos* it agrees in having four long setae posteriorly, in the tarsi of the posterior legs being different from the rest and in the posterior border of the ventral abdominal segments being armed, though it differs in detail in all these features. *Pseudoxenos* is a true Xenid with host *Odynerus*.

It would thus appear that the genera with Heteropterous hosts, combined provisionally, with *Triozocera*, in the family CALLIPHARIXENIDAE form a fairly homogeneous group intermediate between Pierce's Mengeoidea and Xenoidea, being related according to the males (*Corioxenos* and *Triozocera*) with the MENGENILLIDAE, though the apodous and completely parasitic larvae and larviform females differ widely from the free-living larvae and complete females of this family (*Eoxenos* and *Mengenilla*). According to the females the affinity is rather with the Xenoidea, though with wide differences in the form of the cephalothorax and in host-relationships. The first-stage larva, exhibiting close resemblance with that of *Eoxenos* on the one hand and of *Pseudoxenos* on the other, and no close resemblance with that of *Callipharixenos* would seem to indicate that we have not yet found the key to the true relationships of this group, and must wait for further discoveries to implement our knowledge of some of these forms before a satisfactory scheme of classification can be devised.

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A NEW SPECIES OF *TIPULA* FROM THE AZORES (DIPTERA)

By the late Dr. P. Lackschewitz.
(*Latvia.*)
Communicated by Dr. F. W. Edwards, F.R.E.S.

Tipula virgulata sp. n.

Head grey, including rostrum. Genae brown. Labium and palpi dark brown. Antennae of ♂ a little longer than head and thorax together, scape yellow, flagellum blackish-brown, segments cylindrical, slightly thickened at base, with very short verticils. *Thorax*: Praescutum yellowish, with four dull blackish-brown stripes, the middle pair separated by only a fine pale line; scutum with large brown spots; scutellum and postnotum brownish-grey; pleurae whitish dusted. *Abdomen* shining yellowish-brown, hypopygium only a little thickened. *Legs* brown, femora somewhat yellowish towards base, tarsi blackish-brown. *Wings* narrow, veins and stigma dark brown. On the grey-tinted membrane are some paler spots and streaks, before and beyond the stigma, in both basal cells, and in the anal and axillary cells; also the apical cells somewhat paler in the centres. Longitudinal veins, especially Cu, unmarked, so that the wings have a dark appearance. Halteres yellowish with pale knob. Wing-length 11 mm.

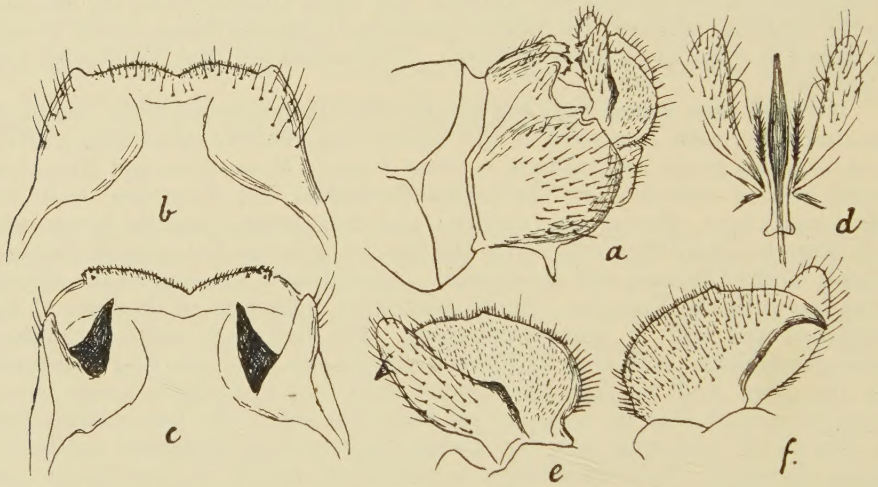


Fig. 1.—*Tipula virgulata* sp. n.; *a*, hypopygium from side; *b*, ninth tergite from above; *c*, from below; *d*, adminiculum; *e*, left *app. sup.* and *interm.* from outside; *f*, from inside.

The hypopygium is of the type of the *obsoleta*-group. Ninth tergite with shallow emargination in middle; on the somewhat prominent angles with some small black spinules; on the underside a pair of triangular black chitinous plates. Eighth sternite unmodified, its posterior margin straight. Ninth sternite with a membranous closed furrow, which has a peg-like process in the middle. *Appendix supera* longish, notched and deeply pigmented on the front edge at the base, as in *T. rufina* Mg. *Appendix intermedia* of simple structure, broad at base and ending in a black pointed beak which is somewhat bent downwards, on the upper margin a small indistinct tooth. Adminiculum resembling in structure that of the *obsoleta*-group, but the lateral arms very thin and reaching only to the middle of the black penis-sheath.

Azores: Pico, North slopes, 4–6000 ft. vii.1929 (*J. Balfour-Browne*). 3 ♂♂ in Brit. Mus.

A NEW STUDY OF *MESOXENA MISTURA* SMITH

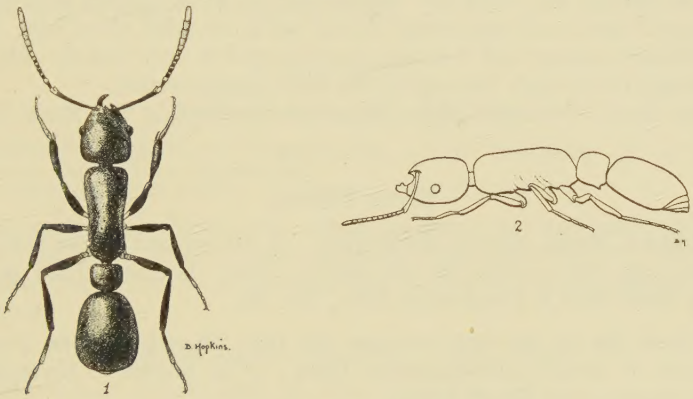
By Horace Donisthorpe, F.Z.S., F.R.E.S.

(*Department of Entomology, British Museum, Natural History.*)

Mesoxena mistura Smith, 1860, *J. Proc. linn. Soc.* (*Zool.*), **4** (Suppl.): 107 (pl. 1, fig. 10); 1865, Mayr, *Novara Reise*, : 10; Dalla Torre, 1893, *Cat. Hym.*, **7** : 27; Emery, 1911, *Ann. Soc. ent. Belg.*, **55** : 219; 1925, *Gen. Ins.*, **183** : 212; Donisthorpe, 1932, *Ann. Mag. nat. Hist.*, (10) **10** : 462.

I have drawn up the following more elaborate description to supplement the original description of this ant :—

Black, extreme apex of scapes and funiculus of antennae, eyes, apex of teeth of mandibles, last three visible segments of gaster and legs yellow-brown, apex of funiculus, articulations of the joints, and tarsi lighter. Whole body finely coriaceous and covered with a very sparse grey pubescence; head and thorax with some small scattered punctures. *Head* slightly longer than broad, narrowed in front, sides and base rounded, joined to thorax by a distinct neck; *eyes* round, very prominent; *mandibles* strong, curved, terminal border furnished with five teeth (the three apical ones sharp, subequal, the two basal ones shorter and blunter), not meeting in the same plane as the rest of the mandibles, but at an angle



Figs. 1–2.—*M. mistura* Smith.

beneath; *frontal carinae* furnished with a lobe; *antennae* long, 12-jointed; *scape* when bent back reaching beyond posterior corners of the head, shorter than funiculus, *funiculus* increasing in breadth to apex, 1st joint long, 2–8 subequal in length, 9 and 10 longer, last joint the longest. *Thorax* long, cylindrical, over twice as long as broad, at the greatest width, which is at apex, slightly contracted a little below the middle, with no sign of divisions into segments when seen from above (when seen from the side some very faint traces of such may be seen), truncate at apex with anterior angles rounded, rounded at base (the *epinotum*), the declivity of which is also rounded. *Petiole* massive, broader than long, as long as high, furnished with a blunt tooth near apex beneath, sides rounded, base subtruncate, apex rounded, the basal and apical declivities flat. *Gaster* longer than broad, narrowed at base, broadest at apex of first segment which is very long, nearly covering the succeeding segments when seen from above. *Cloacal orifice* round, terminal, surrounded by a fringe of hairs. *Legs* long, the intermediate and posterior tibiae furnished at apex with two small, inconspicuous spurs, the inner one being considerably the thicker.

Long. 4·7 mm.

The specimen has lost one mandible, the head is cracked, the clypeus broken, and I can find no trace of either maxillary or labial palpi.

Smith stated that he was unable to trace the labial palpi, but described the maxillary palpi as 6-jointed (a condition very seldom found in the PONERINAE) and made no mention of the loss of one mandible, nor that the head was cracked both above and below. One wonders if the injuries were caused when he was investigating the palpi, or at some subsequent date. When the specimen was cleaned with spirit the crack became much more obvious.

Smith placed his genus in the PONERINAE and stated : " It will be seen that *Mesoxena* partakes of the characters of two very distinct families, the PONERIDAE and the CRYPTOCERIDAE ; of the former in the character, or form of head, thorax and peduncular node ; and of the latter, in the enlargement of the basal segment of the abdomen." Smith included the Formicine genus *Echinopla* in his CRYPTOCERIDAE. As will be seen, however, by the formation of the cloacal orifice, *Mesoxena* belongs to the FORMICIDAE.

Mayr placed it in his subfamily FORMICINAE, but Dalla Torre returned it to the PONERINAE, placing it between *Ectatomma* and *Platythyrea*.

Emery considered it to be a " Camponotine " and very closely allied to the genus *Echinopla* Smith. In the *Genera Insectorum* he placed it in the FORMICINAE after *Echinopla*.

This interesting ant certainly comes near to some species of *Echinopla* in its prominent eyes, and sutureless thorax with rounded shoulders, but there the resemblance ceases, and I should not consider it very closely allied to that genus, though it certainly belongs to the tribe Camponotini.

I must thank Professor Hale Carpenter for lending me Smith's type to study.

BOOK NOTICE.

D. P. MURRAY, *South African Butterflies. A Monograph of the family Lycaenidae.* pp. viii + 195, 18 pls. (col.). 8vo. London, 1935 [i.e. 1936]. John Bale, Sons & Danielsson, Ltd., 25*s.* 0*d.*

This book has on its dust wrapper the title " South African Butterflies " and a figure of *Amauris dominicanus* Trim. ; it is, however, devoted entirely to the LYCAENIDAE of South Africa.

A large part of the book is devoted to the early stages, and many illustrations from originals in black and white and colour are given.

It should be noted that, although the title page is dated " 1935," the publishers give as the date of publication " January 14, 1936."

Care must be exercised when the time comes to rebind the book, since many of the illustrations are printed right up to the edge of the plates.

The book gives the first details to be published of the life-history of many South African Lycaenids, but it is unfortunate that the author does not appear to follow the rules of the International Code of Zoological Nomenclature in all particulars.

ON THE IDENTITY AND SYSTEMATIC POSITION OF EIGHT SPECIES OF RHOPALOCERA DESCRIBED BY JACOB HÜBNER IN HIS *DER SCHMETTERLINGE LEPIDOPTERA LINNEI*, [1790]–[1793]

By Francis Hemming, C.B.E., F.R.E.S.

I have recently examined the copy now in the library of the Royal Entomological Society of London of the little work published anonymously by Jacob Hübner in the period 1790–1793 under the title "Der Schmetterlinge *Lepidoptera Linnei*, Europäisches Heer." This work consists of a synonymic catalogue of the "European" (*i.e.* Palaearctic) butterflies known at that time. Of the 190 species enumerated in this catalogue, ten are named there for the first time. Hübner gave no descriptions for the species so named, but these names are valid in the sense that each of them is accompanied by a bibliographical reference, which places beyond dispute the identity of the species to which the name applies. The question whether these names are valid in the sense that they are the first nomenclatorially available name for the species (or subspecies) concerned is discussed below.

Satyridae.

Erebia tyndarus (Esper, [1781]).

Papilio tyndarus Esper, [1781], *Die Schmett.* **1** (Bd. 1) Forts. Tagschmett. : 97, pl. 67, fig. 1 ♂. "Schweiz, Canton Bern, Grindelwald."
Papilio cleo [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : (10).

Hübner said of his *Papilio cleo*, which he placed in the *Nymphales gemmati* "36 Cleo. *Tyndarus E.* . . . Esp. Schmett. Falt. LXVII. 1." The name is thus an absolute synonym of *tyndarus* Esp., since it is based on the figure of Esper's type.

Agapetes psyche ([Hübner], [1790]–[1793]).

Papilio psyche [Hübner], [1790]–[1793], *Der Schmett. Lep linn.* : (9).
Papilio arge var. *occitanica* Esper, [1793], *Die Schmett.* Supp. Band, **1** Abschn. Tagschmett. : 17, pl. 96, fig. 3 ♂, 4 ♀. "Languedoc, Dauphiné."
Papilio syllius Herbst, 1796, *in* Jablonsky, *Naturg. Ins.* (*Schmett.*) **8** : 15, pl. 182, fig. 8, 9 ♂. "Languedoc."
Papilio psyche Hübner, [1799]–[1800], *Samml. europ. Schmett.* **1** : pl. *Pap.* 44, fig. 198, 199 ♀.

Of his *Papilio psyche*, Hübner said "29 Psyche. . . . Pap. d'Europe XXX. 60. e. f." Reference to the text of Ernst & Engramelle's work (**1** : 134–135) shows that according to those authors the specimen figured by them on the upper and under surface which Hübner referred to his *Papilio pysche* came from the cabinet of M. Gigot d'Orcy, "qui l'a recue d'Angleterre, ou elle avoit été trouvée." This locality is of course wrong, for this species has never occurred in England. Its only known locality at that time was "Languedoc, Dauphiné," the locality cited by Esper. It is clear from Esper's remarks that "Languedoc" was the locality from which his specimens came, and this locality should therefore be treated as the type locality of *Papilio psyche* [Hübner]. This species was known by the name *syllius* Herbst in the latter part of the nineteenth century. More recently it has come to be called by Esper's name *occitanica*.

Satyrus bryce [Hübner], [1790]–[1793].

Papilio bryce [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 9; *id.*, [1799]–[1800], *Samml. europ. Schmett.* **1** : pl. *Pap.* 33, fig. 149, 150 ♀; *id.*, [1805]–[1806], *ibid.* 1 : 25 "Russland."

Hübner's entry in the *Der Schmett. Lep. linn.* in regard to this species reads :—" 9 Bryce. Esp. Schmett. Falt. LXXXV. 4." Esper's figure 4 on plate 85 is therefore the type of this species. His description of this insect, which he regarded as a variety of *Papilio actaea* Esper, is on page 166 of the *Zweite Band* of the *Erste Theil* of his *Europäischen Schmetterlinge*, and forms part of a special supplement on the *Russische Schmetterlinge* (which begins on page 157). Esper said that he had received this insect from Professor Böber and that it occurred in Russia very abundantly on limestone hills and steppes in May and June. This is therefore the type locality of *Papilio bryce* [Hübner].

This insect is conspecific with the insect formerly known as *Satyrus cordula* (Fab.) and more recently as *Satyrus ferula* (Fab.). This used to be regarded as a race of *Satyrus actaea* (Esp.); but it is now known to be specifically distinct therefrom. Not only are there constant structural and superficial differences, but the two insects also occur together in some places (*e.g.* at Digne in the department of the Basses-Alpes in south-eastern France), though *ferula* is fully emerged and going over before *actaea* begins to emerge. The names *ferula* and *cordula* were both published first by Fabricius in 1793 (*Ent. syst.* **3** (1) : 225 and 226 respectively). In the absence of further evidence it is necessary to conclude that this volume was published at the end of the year. The *Lep. linn.* of Hübner was published at latest on some date in 1793 prior to the publication in that year of plate 95 of Esper's *Schmetterlinge*. Hübner's *Lep. linn.*, even if published as late as 1793, must therefore take precedence of Fabricius's *Ent. syst.* It follows therefore that the name *Satyrus bryce* [Hübner] must in future be used as the name for the collective species hitherto called *Satyrus ferula* (Fab.). The latter remains the valid name for the Italian subspecies of this species.

This species is here placed in the genus *Satyrus* Latr., 1810, since it is congeneric with *Papilio actaea* Esp. [1780], which, under suspension of the Rules, was declared by the International Commission on Zoological Nomenclature at its meeting in Lisbon in 1935 to be the type of *Satyrus* Latr.

Coenonympha dorus (Esper, [1782]).

Papilio dorus Esper, [1782], *Die Schmett.* **1** (Band 2) Forts. Tagschmett. : 130, pl. 78, fig. 1 ♂ "Gebirgen von Languedoc."

Papilio dorion [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 10; *id.*, [1799]–[1800], *Samml. europ. Schmett.* **1** pl. *Pap.* 52, fig. 247–248 ♂.

Hübner's entry in the *Der Schmett. Lep. linn.* reads as follows : " 45 Dorion. *Dorus* . . . Esp. Schmett. Falt. LXXVIII. 1." His *dorion* is thus an absolute synonym of *dorus* Esper, being based upon the figure of Esper's type.

Coenonympha tullia philoxenus (Esper, [1780]).

Papilio philoxenus Esper, [1780], *Die Schmett.* **1** (Band 2) Forts. Tagschmett. : 25, pl. 54, fig. 3 ♀. "Baireuth; Frankfurt am Main"; *id.*, [1782], *ibid.* : 132, pl. 78, fig. 3 ♂ "Franconia, Wilhelmsdorf."

Papilio demophile [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 10.

Hübner's entry for *demophile* reads as follows :—" 42 Demophile. *Davus F.* . . . Esp. Schmett. Falt. LIV. 3. u. LXXVIII. 3." This name is thus an absolute synonym of *philoxenus*, since it is based upon Esper's type.

Hübner's use of the name *demophile* in the *Lep. linn.* as a synonym of *philoxenus* Esp. leaves the Lapland subspecies of *Coenonympha tullia* (Muller) without a valid name. Two names have been given to this subspecies but both of them are invalid. The first is *Papilio isis* Thunberg, 1791 (*Ins. suecica* (2) : 31), described from " Suecia, Roslagia," which is a homonym of *Papilio isis* Drury, 1773 (*Ill. nat. Hist.* **2** : index and 6); and the second is *Hipparchia demophile* Freyer, 1845 (*Neuere Beitr. Schmett.* **5** (74) : 97, pl. 439, fig. 3 ♂, 4 ♀), described from " Lappland." The first of these names is invalid owing to its being a primary homonym of the identical name given eighteen years earlier by Drury to a different species, the second because it is a second homonym of *Papilio demophile* [Hübner] given by Hübner (as shown above) to another subspecies of the same species. I accordingly propose the name **Coenonympha tullia suevica** nom. n. *pro Papilio isis* Thunberg, 1791 (*Ins. suecica* (2) : 31). The type locality of this subspecies is of course the same as that given by Thunberg for his *isis*, viz. " Suecia. Roslagia."

Nymphalidae.

Euphydryas cynthia ([Denis & Schiff.], 1775).

Papilio cynthia [Denis & Schiff.], 1775, *Schmett. Wien* : 179 " Wien."
Papilio cynthia [Denis & Schiff.] var., Esper, [1777], *Die Schmett.* **1** (7) : pl. 37, fig. 3 ♂.
Papilio trivia [Denis & Schiff.], [1779], Esper, *Die Schmett.* **1** (9) : 349 " Wien "; *id.*, [1780], *ibid.* **1** (Band 2) Forts. Tagschmett. : 56, pl. 60, fig. 1 ♀ " Wien."
Papilio mysia [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 4; *id.*, [1799]–[1800], *Samml. europ. Schmett.* **1** pl. *Pap.* 1, fig. 3 ♂.

Hübner said of his *mysia* :—" 2 Mysia. *Cynthia F.* . . . Esp. Schmett. Falt. XXXVII. 3. u. LX. 1." As shown above, the figures on which this name is based all represent *Euphydryas cynthia* ([Denis & Schiff.]), of which therefore it is a synonym.

Araschnia levana (Linn., 1758) form *porrima* ([Hübner]).

Papilio porrima [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 6.
Papilio porima Ochsenheimer, 1807, *Schmett. Europa* **1** (1) : 134 " Wien."

Hübner's entry reads as follows :—" 4 Porrima . . . Pap. d'Europe LVI 8. bis a — d." The figures given by Ernst and Engramelle, which constitute the types of Hübner's *porrima*, represent the form of *Araschnia levana* (Linn.) intermediate between the nominotypical spring form of this species and the dark summer form named *prorsa* by Linnaeus. This intermediate form has hitherto been known as form *porima* Ochsenheimer. As shown above, that name must now be sunk to *porrima* [Hübner].

Pieridae.

Pieris bryoniae ([Hübner, [1790]–[1793]).

Papilio bryoniae [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 14; *id.*, [1806], *Samml. europ. Schmett.* **1** : 62, no. 4. *nota*; Hoffmansegg, 1806, *Mag. f. Insektenk.* (Illiger) **5** : 180; Ochsenheimer, 1808, *Schmett. Europa* **1** (2) : 151, nota 2.
Papilio napi Linn. var., [1781], *Die Schmett.* 1 (Band 2) Forts. Tagschmett. : 87, pl. 64, fig. 3 ♀ [' ♂ '], 4, 5 ♀. " Steiermark."

Hübner's entry for *bryoniae* in the *Lep. linn.* reads as follows :—" 16 Bryoniae . . . Esp. Schmett. Falt. LXIV. 5." This figure of Esper's represents (as shown above) a female of this species from Styria. I have already pointed out (Hemming, 1934, *Stylops* **3** : 194) that the author of the name

bryoniae is Hübner and not Ochsenheimer, as stated in all works of reference, that name having been used by Hübner in the text of the *Sammlung europäischer Schmetterlinge* two years before it was published by Ochsenheimer. We now see that it was published many years earlier by Hübner in the *Lep. linn.* The specimens figured by Esper, which are now the types of *Pieris bryoniae* ([Hübner]), were taken in Styria. This now becomes the type locality of this species.

This insect has been treated in the past as the alpine subspecies of *Pieris napi* (Linn.), but from observations made in the field in 1929 near the Talalpsee in the Canton Glarus, where *P. napi* (Linn.) and *P. bryoniae* ([Hübner]) occur within 100 ft. of one another, I have long been convinced that *P. bryoniae* was specifically distinct from *P. napi*. I was therefore very interested to read the paper in which Müller has definitely shown that this is so (1933, *Int. ent. Z.* **27** : 93 *et seq.*

Hesperiidae.

Carcharodus alchymillae ([Hübner], [1790]–[1793]).

Papilio alchymillae [Hübner], [1790]–[1793], *Der Schmett. Lep. linn.* : 15.
Papilio altheae Hübner, [1800]–[1803], *Samml. europ. Schmett.* **1** pl. *Pap.* 90, fig. 452, 453 ♀; *id.*, [1806], *ibid.* **1** : 69 " Deutschland."
Carcharodus imperator Hemming, 1934, *Stylops*, **3** : 99.

Hübner made the following entry for his *alchymillae* :—" 2 Alchymillae. . . . Bergstr. N. u. B. XCI. 1. 2." Bergstrasser's figures cited by Hübner represent clearly the upper and under side of a female of the species until recently known as *Carcharodus altheae* (Hübn.). In 1934, I pointed out (Hemming, 1934, *Stylops* **3** : 99) that this name was invalid, since *Papilio altheae* Hübner [1800]–[1803] was a homonym of *Papilio althaeae* Esper, [1783], *Die Schmett.* **1** (Band 2) Forts. Tagschmett. : 149, and proposed the name *Carcharodus imperator* to take its place. The discovery that Hübner named this species *alchymillae* in the *Lep. linn.* is very satisfactory, since it provides a name for this species proposed by the author by whom it was first separated from its ally *Carcharodus fritillarius* (Poda, 1761), a species formerly commonly known as *Carcharodus alceae* (Esper, [1780]).

There is no text of Bergstrasser's *Nomenclator* relating to the insects figured on plate 91 of that work, but we may conclude that the insect figured on figures 1 and 2 of that plate were taken in the Grafschaft Hanau-Münzenberg, since the whole of Bergstrasser's work was devoted to the description and illustration of the insects of that principality. Hanau-Münzenberg should therefore be taken as the type locality of *Carcharodus alchymillae* ([Hübner]).

Spialia hibiscae ([Hübner], [1790]–[1793]).

Papilio hibiscae [Hübner], [1790]–[1793], *Der Schmett. Lep linn.* : 15.
Papilio sao Hübner, [1800]–[1803], *Samml. europ. Schmett.* **1** pl. *Pap.* 93, fig. 471, 472 ♀.
Papilio sertorius Hoffmansegg, 1804, *Mag. f. Insektenk.* (Illiger) **3** : 203; *Papilio sertorius* Hoffmansegg, Hübner, [1806], *Samml. europ. Schmett.* **1** : 71, no. 8 " Deutschland."

Hübner's entry for *hibiscae* reads as follows :—" 8 Hibiscae. . . . Pap. d. Eur. Supp. 97. tert. c. d." The correct description of the figures in Ernst and Engramelle's work cited by Hübner is plate 7 III. Supp. fig. 97 c. tert, d. tert. These figures represent the upper and under side of a female of the species figured as *Papilio sao* by Hübner in his *Sammlung*. That name is invalid, since it is a homonym of *Papilio sao* Bergstrasser, 1779, *Nom. Ins.* **2** : 67. It was replaced in 1804 by Hoffmansegg, who proposed the name *Papilio*

sertorius as a nom. nov. for the figures (fig. 471, 472) of this insect that Hübner had published in the *Sammlung* under the name *Papilio sao*. We now see that more than ten years earlier Hübner had himself proposed the name *Papilio hibiscae* for this species. This name therefore replaces the name *sertorius* Hoffmansegg.

Ernst and Engramelle (**2** : 329) gave no locality for the insect figured by them on figures 97 c. tert and 97 d. tert, but stated that they had received it from Herr Gerning as the *fritillum* of Schiffermüller (which of course it is not). The nominotypical subspecies of *hibiscae* (= *sertorius*) is widely distributed in Germany and, in view of the fact that Hoffmansegg gave " Deutschland " as the locality for his *sertorius*, Germany should be taken as the type locality of *hibiscae* [Hübner].

I place *Papilio hibiscae* [Hübner] in the genus *Spialia* Swinhoe, 1912 (*in* Moore, *Lep. ind.* **10** (113) : 99), because there are no characters by which that species can be separated generically from *Hesperia galba* Fab., 1793, the type of that genus. The earlier generic name *Powellia* Tutt, 1906 (*Brit. Butt.* **1** : 218) is invalid, since it is a homonym of *Powellia* Maskell, 1879 (*Trans. N. Z. Inst.* **11** : 223).

THREE NEW SPECIES OF *ANOMALA* (COL. SCARAB. RUTELINAE) FROM NEW GUINEA.

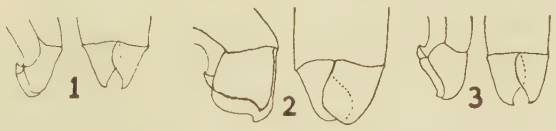
By Dr. F. Ohaus.

(*Mainz.*)

Communicated by Mr. G. J. Arrow, F.R.E.S.

Anomala clarescens sp. n.

Allied to *A. lucidula* Guér. Oblong-ovate, somewhat broadened behind and convex. Colour dark brown with very feeble metallic green lustre, sometimes reddish or yellowish-brown; upperside and pygidium hairless, sterna with short greyish hairs. Clypeus broader than long, the sides feebly convergent, the anterior margin more elevated than the sides frontal suture straight, surface like the flat forehead densely and confluently punctured; colour of the head dark brown with or without feeble metallic green lustre, or clypeus alone reddish-brown, or the whole head reddish-brown. Thorax either unicolorous dark brown,



or with yellowish side-borders, densely and finely punctured, the basal stria not interrupted before the scutellum, a fine longitudinal stria more or less distinct on the disc. Scutellum dark brown. Elytra with the primary rows of points feebly sulcate, in the subsutural interstice 2 secondary costae, the other interstices with an abbreviated series of shallow punctures; colour yellowish-brown with dark suture. Pygidium densely and finely transversely strigose with some few short hairs at the sides and apex. Underside and legs yellowish, or the hind tibiae and tarsi dark brown. Anterior tibiae with a sharp lateral tooth behind the apical tooth. Antennal club somewhat shorter than the stem in the ♂. Aedeagus, fig. 1. Length, 9–10½; breadth, 5–5½ mm. ♂.

Dutch N. Guinea : Mimika River (*A. F. R. Wollaston*).

Anomala kokodae sp. n.

Allied to *brachycaula* Ohs., from Celebes. Elongate-oval, convex, upper and underside brilliant metallic green, elytra testaceous, upperside hairless, pygidium and abdomen sparsely, sterna densely covered with grey hairs. Clypeus densely confluently punctured with the margin feebly reflexed. Thorax convex, the rectangular anterior angles somewhat produced, the obtuse posterior angles slightly rounded, basal margin not interrupted, a longitudinal line on the disc more or less impressed, sides densely and confluently punctured, the disc sparsely. Elytra with the primary rows of punctures feebly sulcate, in the subsutural interstice a line of punctures double in the anterior half, the other interstices without such lines of punctures. Pygidium very densely and finely aciculate, opaque. Anterior tibiae with a sharp lateral tooth behind the long apical tooth. Aedeagus, fig. 2. Length, 10–12, breadth, 5½–6½ mm. ♂♀.

S.E. New Guinea : Kokoda, 1200 ft. iv.–ix.1933 (*L. E. Cheesman*).

Anomala subterfulva sp. n.

Allied to *A. subterfusca* Ohs., but differing by the colour and sculpture of the elytra. Elongate-oval, not broadened behind, upperside and pygidium blackish-brown, sides of the thorax, underside, legs and antennae yellowish-brown. Head reddish-brown, densely and confluently punctured; thorax and scutellum finely distinctly punctured, the basal margin of the former not interrupted. On the elytra the primary rows of punctures are sulcate, in the subsutural interstice 2 secondary costae are somewhat flattened behind the scutellum, the other interstices with simple rows of punctures, the whole surface overspread with very fine single punctures. Pygidium very densely and finely sculptured, somewhat brilliant. Abdominal sternites brilliant yellowish-brown with darker posterior margins, while the sides of metasternum are less shining and thinly clothed with erect yellowish hairs. Legs stout, anterior tibiae with a sharp lateral tooth. Aedeagus, fig. 3.

In some immature specimens the elytra are reddish-brown instead of blackish-brown. Length 10–12, breadth 5–6 mm. ♂♀.

S.E. New Guinea : Kokoda, 1200 ft. vi.–x. 1933 (*L. E. Cheesman*).

The types of these three new species are in the British Museum, paratypes in the author's collection.

A NEW *DIPLATYS* (DERMAPTERA) FROM BELGIAN CONGO

By W. D. Hincks, M.P.S., F.R.E.S.

The present description is taken from a paper written some time ago but not published, on the advice of Dr. H. Schouteden, who informed me that Dr. C. Menozzi was publishing on similar material from the Belgian Congo. The latter's interesting paper has now appeared ("Contributo alla Conoscenza dei Dermatteri del Congo Belga," 1935, *Rev. Zool. Bot. afr.*, **27** : 15–31, 9 figs.), so that there is now no further need for delay.

It is interesting to note that Dr. Menozzi has identified *Diplatys coriaceus* (Kirby) 1891, a species which has long been an enigma, known only from the broken female type in the British Museum from Sierra Leone and a male at Genoa found in Portuguese Guinea by Fea. Quite independently I had made the same determination, and the specimens so named agree exactly with Menozzi's both as regards the very distinctive genitalia and the characteristic structure of the ultimate sternite in the male.

As an extended account of the Congo Dermaptera is in preparation all data additional to the description given below will be held over for that publication.

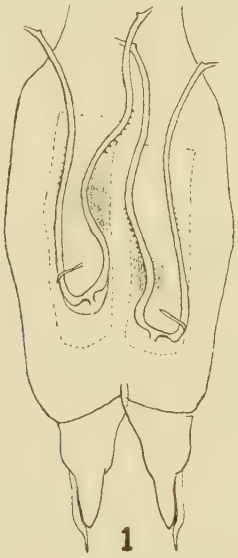
My grateful thanks are due to Dr. H. Schouteden and Mr. L. Burgeon of the Congo Museum for the opportunity of examining a fine series of Congo earwigs.

Diplatys burri sp. n.

Coll. Mus. Congo: 2 ♂♂, Ituri: Genge, 15.iii.1929, (*A. Collart*).

Type: one of the above examples. Paratype: the second example, received broken. The genitalia have been removed and staged below the specimen.

Antennae 21-jointed in one specimen, others broken; basal joint considerably swollen and almost as long as three succeeding joints; second small and transverse; third longer than fourth and slightly longer than fifth; succeeding segments subequal in length. *Eyes* rather coarsely facetted and protruding beyond the level of sides of head. *Mouth-parts* moderately prominent. Frons between insertion of antennae with two more or less circular pits separated by a diffuse carina; frons moderately tumid caudad, quite sharply demarked from depressed occiput which differs little in sculpture from rest of head, not bounded by



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distinct carinae; lateral postocular ridges also absent; medially depressed occipital area obscurely carinate. Head closely covered with evenly and closely placed punctures carrying short hairs interspersed with a few scattered larger bristles, as for instance on posterior declivity of frons and a widely and evenly spaced row on caudal margin of head; punctures just observable with a x15 hand lens. *Thorax, tegmina* and *abdomen* similarly clothed; the first with a longitudinal median area plainly seen under a lens to be devoid of piligerous punctures; sides of thorax rather strongly and evenly rounded, widest a little behind middle with subtruncate caudal margin. *Tegmina* slightly abbreviate; humeral angle weak; lateral margin concave mesad; outer angle rounded, inner less strongly; caudal truncature a little oblique; sutural angle extending farthest caudad. *Wings* absent or very much reduced. *Abdomen* with nine exposed dorsal tergites. Second and third segments with dorso-lateral tubercles; fourth and fifth narrowest; sixth a little wider; seventh distinctly so; eighth wider, a little more so than ninth. Segments one to six with their sides subparallel; seventh and eighth oblique. Caudal margin of eighth distinctly concave. Ninth subquadrate, a little broader distad with somewhat prominent distal angles; distal border of segment a little advanced, broadly and very shallowly emarginate mesad; sculpture consisting of rather strong, somewhat rugose but shallow punctures with an

anteriorly obsolete central groove; declivity with V-shaped impression, the point caudad, enclosing a boss-like tubercle; caudal margin with two smaller tubercles; sides bear an oblique impression distad extending from the vicinity of these tubercles laterad. All segments without transverse median constrictions. *Forceps* broadly dilated basad, moderately falcate; basal dilation denticulate on inner side, inner distal angle rather rounded. *Penultimate sternite* about as long as broad, sculptured as ultimate tergite with median groove complete distad but incomplete proximad; on either side, latero-medially a distinct longitudinal carina extending from the proximal margin almost to half length of sternite; outer distal angles rounded; caudal margin concave. *Legs* as in rest of body very sparingly provided with long bristles though microtrichia present. *Colouration* of antennae liver-brown except first and second segments which are yellow-brown. Head warm liver-brown. Thorax matt brown-yellow. Tegmina dull liver-brown, darker at sides. Scutellum intermediate in shade between thorax and tegmina. First two visible abdominal segments similarly coloured to thorax; second darker caudad; remainder brown with indefinite rather lighter area caudad from fourth segment; ultimate tergite similarly coloured, lighter distad. Forceps same colour as distal part of ultimate tergite. Abdomen rather more shining than rest of body. Underside colouring, as far as it can be observed, similar to but lighter than upper surface. Legs coloured as thorax with an indefinite darker cloud at apex of femora particularly caudal pair.

♂, genitalia (vide fig. 1); Length (incl. forceps), 12·5 mm.

♀, unknown.

It will be seen from the above description that on the basis of external characters alone this interesting species is a member of the *macrocephalus* group to which besides the African *macrocephalus* * and *quaesitus*,† the Indian *falcatus*,‡ *gladiator* § and *bicoloripes* ‖ belong.

In many respects this species resembles *gladiator*, but probably some of the similarities represent convergence rather than any really close relationship as is likely the case in the similarity between *burri* and other members of the group. Turning to the genitalia a very different type of structure is evident from any of the above-mentioned species that have yet been figured in this respect.

It will be noticed that the metaparameres are very broad basad and have the distal portion narrowed into a more or less parallel-sided digit-like extension. The presence of a long epimerit should also be noted, together with the long virga. Excluding the last character the value of which is yet to be estimated, the genitalia approximate more closely to Burr's figure of *D. conradti* Zacher *nec* Burr (*J. R. micr. Soc.*, **1915** : pl. v, f. 12) than to anything else yet figured. The virga, however, offers an immediate distinction and I am of the opinion that the species referred to above will prove to be identical with *D. coriaceus* (Kirby).

Other interesting features of the genitalia of *D. burri* are the presence on the external margin of both branches of the virga of distinct teeth. The apex of the virga also has a very peculiar armature (fig. 2); just before the apex on the upperside there is a prominent rounded tubercle beyond which both sides of the apical portion seem to be particularly strongly chitinised, with the upperside provided with about eight strong teeth which are smaller towards the apex. The extreme apex both above and below appears to be slightly reflexed.

* Beauv., 1805, *Ins. Afr. Amer.* : 36, Orth., t. 1, f. 3 (*Forficula*) (Benin).
† Rehn, 1924, *Bull. amer. Mus. nat. Hist.*, **49** : 355, f. 2–4, ♂♀ (Belgian Congo).
‡ Burr, 1910, *Fauna Brit. India*, Dermaptera : 42, f. 4 and 3a, ♂ (Calcutta).
§ Burr, 1905, *J. Proc. Asiat. Soc. Bengal*, (n.s.) **2** : 28, 29 (Calcutta).
‖ Hebard, 1923, *Mem. Dept. Agric. India*, **7** : 196, ♂, t. xix, f. 1 and 2 (Nagpur).

A NEW SPECIES OF PASSALIDAE (COL.) FROM MEXICO

By John R. Dibb, F.R.E.S.

Amongst a small collection of Passalidae sent for identification by the authorities of the German Entomological Museum, Berlin-Dahlem, is a single example of a striking new species. This belongs to the genus *Pseudacanthus* Kaup as characterised by Gravely (1) in his table of the Pseudacanthine genera. The tridentate mandibles together with the soldered elytra and reduction in wing development indicate the decadence of the genus *Pseudacanthus*, and the new species possesses those well-marked characters referred to by Hincks (2) which are usually associated with wing reduction in the Passalidae.

The dorsal aspect of the new species characterised below is very smooth and shining with no hair on the elytra which are short and egg-like in appearance. The central tubercle is large, having a dorsal central groove and depressed pointed apex. The thorax bears little hair on the margins, is quadrate with rounded angles.

The closest allied species is *P. heros* Truqui (3), but *nonstriatus* can be readily differentiated by the following characters :—

1. elytral striae having smaller and less regular punctures,
2. central tubercle with decumbent apex,
3. prothorax with scarcely any hair,
4. size smaller.

Sixteen species of *Pseudacanthus* with a Central American or Mexican distribution appear in the recently published Coleopterorum Catalogus—Passalidae (4), and judging by the collections to which Mr. Hincks and I have had access these do not seem to occur in large numbers and almost all the species are apparently scarce.

No addition to the genus has been made since 1906 when Arrow described *Triaenurgus solidus*, *Triaenurgus* now being considered as synonymous to *Pseudacanthus*. I therefore do not hesitate to describe the present new species from a unique example.

In conclusion I would express my indebtedness to Dr. Walther Horn and Dr. Hans Sachtleben of the German Entomological Museum, Berlin-Dahlem, for sending the specimen for examination and description.

Pseudacanthus nonstriatus sp. n.

Antennal lamellae robust. Distal margin of labrum strongly concave, lateral margins gently curved. Head with convex clypeus; frontal area rugose, narrow owing to the massive base of the central tubercle; frontal ridges wanting, a few pits and small punctures in the cavities on each side of the central tubercle; the impunctate supra-orbital ridges uneven; a small deeply pitted area immediately behind the eyes; the central tubercle with massive base and free bluntly pointed apex, the latter decumbent, dorsal view of central tubercle triangular, depressed with shallow groove its entire length. Mandibles tridentate, right upper tooth more pointed than left. Mentum with lateral plates covered with large hair-bearing punctures and with central tumid area bound posteriorly by a deep transverse groove extending half-way across the side-pieces. Pronotum covered with

microscopic punctures; central groove deep, not quite reaching anterior margin; marginal furrow obsolete on each side of the anterior margin between the centre and two-thirds of the distance towards the lateral margins and also for a short distance in the centre of the posterior margin; hairing confined to posterior angles; scars single and impunctate. Scutellum impunctate with deep median sulcus. Mesothorax closely punctate above with matt elongate scars in the impunctate lower part. Metasternum covered with fine hair-bearing punctures in the anterior angles, otherwise impunctate with the exception of a few large scattered punctures in the posterior intermediate areas, lateral areas roughened and extremely narrow. Elytra soldered in middle line; anterior angles right angles; apex somewhat bulbous; most of elytral grooves obsolete; punctures minute in definite rows. Abdominal sterna impunctate; third sternite with two longitudinal wrinkles. Intermediate tibiae with two well-developed and one rudimentary spur, hind tibiae with single central spurs. Length 43 mm.

Type (in Deutsches Entomologisches Institut, Berlin-Dahlem) :—Mexico : Necaxa (Puebla) (*George Heine*).

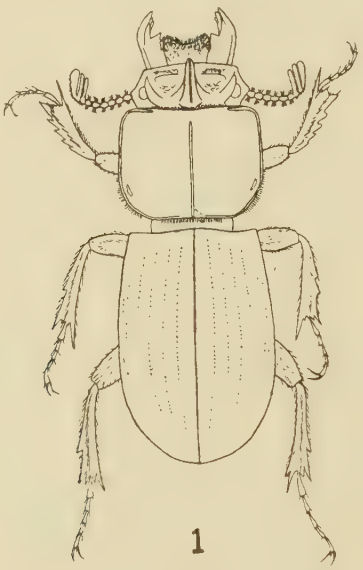

Fig. 1.—*P. nonstriatus* sp. n.

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THREE NEW SPECIES OF TELENOMINAE (HYM. PROCTOTRUPOIDEA, SCELIONIDAE)

By G. E. J. Nixon, B.A.

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Communicated by Mr. N. D. Riley, F.R.E.S.

This paper forms a first supplement to my revision of the African Telenominae.* The material available for study was kindly placed at my disposal by Dr. Charles Ferrière of the Imperial Institute of Entomology. The types of the species described become the property of the British Museum.

Microphanurus crotius sp. n.

♀. Colour: Black. Legs (except the coxae, which are more or less black) reddish-yellow. Scape of antennae a little darker than the legs; radicle *black*; pedicel and first 4 segments of the funicle brownish.

Head less transverse than usual, its width to its greatest length as 27 : 14 approx., when seen along a line perpendicular to a line between the posterior ocelli (fig. 2). Eyes large, bare except for a few minute, scattered hairs, the shortest distance between them across the frons only a little greater than their width as seen from above. No bulge between the mouth and the lower, inner angle of the eye. Frons, except for a feeble impression immediately above the antennal insertions, which has some faint, transverse rugulosities, almost everywhere, very finely and closely scaly-reticulate, appearing at first sight, finely rugose. Vertex a little more densely sculptured than the frons. Between the ocelli, the vertex is not at all sharply angled, so that nowhere is there the slightest trace of a ridge.

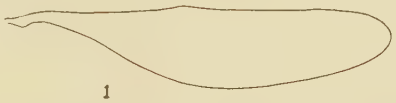

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Fig. 1.—*Microphanurus crotius* sp. n., hind-wing, ♀.

Antennae (fig. 3): scape not nearly reaching the level of the vertex when the head is seen from the side; funicle 1 hardly twice as wide as long; 2 a little longer than wide; 4 very slightly transverse; 5–9 forming a thick but not sharply defined club. Genal sulcus narrow and crack-like. *Thorax* a little narrower than the head, above clothed with very fine, very short, hairs. Mesonotum somewhat dull, evenly convex, not strongly transverse, about 22 : 15, and for the size of the insect, fairly strongly sculptured, the sculpture consisting of distinct and conspicuous raised points which are almost as close together as possible; posteriorly there is a slight tendency for these points to form themselves into longitudinal rugulosities. There is no trace of parapsidal furrows. Scutellum likewise covered with small, raised points but a little less densely than the mesonotum. Post-scutellar medial process about 3½ times as long as wide, more or less reticulate-rugose. Hind-wings narrower than usual (fig. 1), almost 5 times as long as their greatest width. *Abdomen*, when segments are not retracted, probably about 1½ times as long as wide; tergite 2 not strongly transverse, about 21 : 16, fairly strongly striated over its posterior two-thirds; following tergites with only the merest trace of microscopic sculpturation. Length: 1·05 mm. approx.

* 1935, *Trans. R. ent. Soc. Lond.*, **83** : 73.

Uganda: Kampala, *H. Hargreaves*: 1 ♀, bred 20.xi.1929 from egg of a Hemipteron probably belonging to the family Coreidae, on leaf of sweet potato.

In my key to the African species of *Microphanurus*, this species runs to *basalis* Wollaston (= *piceipes* Dodd = *megacephalus* Ashmead), but there are many points of difference. *M. basalis* Woll. is a stouter, more dumpy-looking insect with the head more transverse, more sharply narrowed behind and more massive in proportion to the size of the thorax; the hind-wings, too, are broader, and, altogether, *basalis* is much more typical of *Microphanurus* than *crotius*, which in its comparatively elongate form has much of the facies of a *Telenomus*.

Microphanurus suranus sp. n.

♀. Colour: Black with antennae, except apical 5 segments and legs, except coxae, bright yellowish.

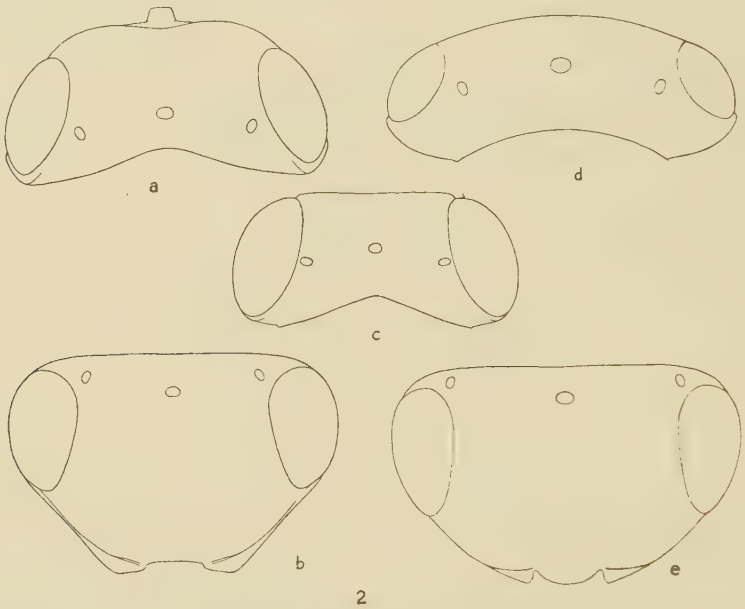

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Fig. 2.—Head, ♀, of *Microphanurus suranus* sp. n., *a* (from above); *b* (from in front); *c*, *M. crotius* sp. n. (from above); *d*, *M. sipius* sp. n. (from above); *e* (from in front).

Head seen along a line perpendicular to a line between the posterior ocelli, nearly 2½ times as wide as its greatest length (fig. 2). Shortest distance between the eyes across the frons a little more than 1½ times the width of the eye as seen from above. Frons conspicuously bulging between the mouth and the lower, inner angle of the eye. Frons, except immediately above the antennal insertions and narrowly up to the anterior ocellus, finely and clearly scaly-reticulate everywhere. Along the inner orbit and in front of the posterior ocelli there is only the merest trace of feeble punctures. Vertex between the posterior ocelli very sharply angled but not differentiated here into a sharp, raised, smooth ridge as in *seychellensis* Kieff., for example. Antennae (fig. 3): scape not quite reaching the level of the vertex when the head is seen from the side; funicle 1 about 1½ times as long as wide; 2 as long as wide; 4 strongly transverse; club thick but not clearly differentiated. *Thorax* a little narrower than the head, clothed above with sparse, semi-decumbent hairs which

are longer on the scutellum. Mesonotum evenly convex, strongly transverse, about 13 : 8 (excluding tegulae), its sculpture very finely, closely but somewhat indefinitely scaly-reticulate, the surface feebly shining. Parapsidal furrows virtually wanting; sometimes there is the merest trace of them posteriorly. Scutellum sculptured like the mesonotum more or less all over. Medial modification of the postscutellum not convex, about twice as wide as long and more or less reticulate-rugose. Fore-wings projecting beyond the abdomen by about half their length; hind-wings normal. *Abdomen* a little longer than wide when the segments are not retracted; tergite 2 distinctly transverse, 7 : 5; except for the costate furrow at base, it is either almost unsculptured or has very feeble striations over its basal two-thirds; following tergites with some microscopic sculpturation. Length : 1·1 mm. approx.

Uganda : Kampala, *C. C. Gowdey*, 3 ♀♀, bred 6.vi.1916, presumably from hemipterous eggs; these females were evidently bred with a series of *Microphanurus seychellensis* Kieff; Kampala, *H. Hargreaves* : 1 ♂, 1 ♀, bred 9.viii.1929 from hemipterous eggs on coffee.

In my key this species runs to *enceladus* Nixon, but *enceladus* has well-defined parapsidal furrows as well as the other differing characters mentioned in the table. *M. suranus* differs from *seychellensis* Kieff. in lacking a truly margined vertex and by having a more transverse mesonotum with different sculpture of this; there is also a ready means of separation in the shape of the second abdominal tergite, as reference to my earlier paper will show. *M. suranus* sp. n. is also readily distinguished from *M. basalis* Wollaston, a species which it resembles in size, by the presence of frontal bulges, different mesonotal sculpture and other characters.

Microphanurus sipius sp. n.

♀. Colour : Black but not intensely black. Antennae, except scape which is yellowish-brown, dark brown. Legs brightly brownish- or reddish-yellow, the coxae darker.

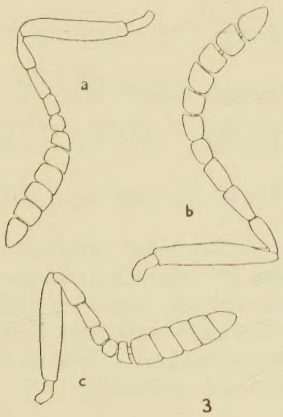

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Fig. 3.—♀, antenna of, *a*, *Microphanurus crotius* sp. n.; *b*, *M. sipius* sp. n.; *c*, *M. suranus* sp. n.

Head seen along a line perpendicular to a line between the posterior ocelli fully 2½ times as wide as its shortest length, 8 : 3 approx. (fig. 2). Shortest distance between the eyes across the frons nearly twice as great as the width of the eye as seen from above. Head from in front markedly transverse, its width to its length as 8 : 5 approx. Frons virtually

everywhere, even in front of the anterior ocellus (though here the sculpture is certainly feebler and in some individuals may reasonably be expected to fade out altogether) feebly shining and very closely, very finely, scaly-reticulate; between the posterior ocelli, the surface becomes finely rugose; in front of these ocelli, are a few scattered, small, very ill-defined punctures. No frontal bulges present. Genal sulcus narrow and crack-like. Vertex not sharply angled between the posterior ocelli. Antennae somewhat slender (fig. 3); scape reaching the level of the vertex when the head is seen from the side; funicle gradually and not strongly thickened from base to apex; funicle 1 about one and two-thirds as long as wide; 2 hardly shorter than 1; 4 very slightly longer than wide; no differentiation whatever into a club, either in length or width between the basal and apical segments. *Thorax* clothed above only with very short and quite inconspicuous hairs. Mesonotum markedly flattened, dull and sculptured all over, the sculpture scaly-reticulate, essentially like that of the frons but closer, more definite and more distinctive; when the mesonotum is seen from behind, there is just the merest trace, in some individuals, of a fine smooth line posteriorly, indicating parapsidal furrows though these are virtually absent. Scutellum flattened and sculptured all over like the mesonotum. Postscutellar medial modification very wide, fully 4 times as wide as long or even more; this structure is quite inconspicuous. Fore-wings extending beyond the apex of the abdomen by almost half their length; hind-wings typical of the genus. *Abdomen* a little longer than wide when the segments are not retracted. Tergite 2, apart from the strongly costate basal furrow delicately and indefinitely striated towards the sides; following tergites with some very feeble sculpture. Length: 1·3 mm. approx.

Kenya Colony: Kiambu, *R. H. Pelley*, series of 10 ♀♀, bred 26.ii.1931 from eggs of *Nezara viridula*.

In my key, this species would run to couplet 7 and then fall out. It is a very distinctive insect, quite unlike anything described in my earlier paper and is characterised by the flattened mesonotum and scutellum and by the fine, even sculpture of these parts as well as of the greater part of the head. The unicolorous, slender funicle of the antenna is also distinctive.

KEYS TO SOME INDIAN GENERA OF CARABIDAE (COL.)

VI. THE GENERA *DRYPTA* AND *DESERA*

By H. E. Andrewes, F.R.E.S.

It is customary to keep these two genera distinct, but they differ only in the character of the claws, which are smooth in *Drypta*, pectinate in *Desera*. As the references to the species and the localities will readily be found not only in my own Catalogue of Indian Carabidae, but also in Csiki's Catalogue, it has not seemed necessary to repeat them here. The descriptions of two new species of *Drypta* will be found at the end of the key.

Drypta.

Key to the Species.

1(12). Prothorax cordate, not much longer than wide, not constricted at base, with well marked generally crenulate border, clearly visible from above, always dark in colour.

2(11). Puncturation of head and prothorax very coarse and confluent, legs with at least the knees infuscate.
3(10). Head wide behind, with much dilated genae, elytra coarsely punctate. Length, 10–13 mm.
4 (7). Eyes projecting laterally beyond genae, tibiae black.
5 (6). Prothorax rather strongly rounded in front, border tuberculate, intervals of elytra costate at base, colour dark blue. Length, 10 mm. *obscura* Schm.-Goeb.
6 (5). Prothorax gently rounded in front, border crenulate, intervals of elytra convex at base, colour blue-black. Length, 13 mm. . *siderea* Bates.
7 (4). Eyes not projecting laterally beyond genae.
8 (9). Border of prothorax crenulate, tibiae ferruginous. Length, 10·5–12·5 mm. . . . . *crassiuscula* Chaud.
9 (8). Border of prothorax tuberculate, tibiae black. Length, 13 mm. *tuberculata* Andr.
10 (3). Head obliquely contracted behind, genae inconspicuous, elytra moderately punctate. Length, 9 mm. . . . . *lugens* Schm.-Goeb.
11 (2). Puncturation of head and prothorax moderately fine and only slightly confluent, legs entirely flavous. Length, 10 mm. *tristis* Schm.-Goeb.
12 (1). Prothorax cylindrical, gently dilated in front and more or less constricted before base, distinctly longer than wide, border slight, at most faintly crenulate, and inconspicuous from above.
13(20). Head, prothorax, and elytra uniformly blue, greenish-blue, or blue-black.
14(15). Dark blue, the head and prothorax blue-black, elytra barely two-thirds longer than wide, intervals—especially the outer ones—strongly convex. Length, 12 mm. . . . . *argillacea* Andr.
15(14). Blue or greenish-blue, elytra about twice as long as wide, intervals only moderately convex. Length not exceeding 11 mm.
16(17). Greenish-blue, legs uniformly ferruginous, elytra striae rather lightly impressed, intervals nearly flat . . . . . *flavipes* Wied.
17(16). Blue, knees infuscate, elytral striae fairly deep, intervals moderately convex.
18(19). Head a fourth wider than prothorax, the latter two-thirds longer than wide and only slightly dilated at middle, the elytral intervals uniformly and fairly closely punctate . . . . . *aetheria* sp. n.
19(18). Head as wide as prothorax, the latter only a third longer than wide and distinctly dilated at middle, elytral intervals very finely and sparsely punctate . . . . . *cyanopa* sp. n.
20(13). Head and prothorax red.
21(22). Elytra blue-black with a faint aeneous tinge, the striae coarsely punctate. Length, 10·5 mm. . . . . *aeneipennis* Bates.
22(21). Elytra dark blue or blue-black with red markings, striae moderately punctate. Length about 9 mm.
23(24). Elytra dark blue with an elongate, discal, red patch, all the red parts iridescent, femora blue with red base . . . . . *aeneipes* Wied.
24(23). Elytra blue-black with a red stripe on each, red parts not iridescent, femora ferruginous, black at apex . . . . . *lineola* Macl.

Drypta aetheria sp. n.

Length, 10·5 mm.

Rather bright blue: buccal organs, antennae, and legs ferruginous, with the apical third of antennal joint 1 and the knees fuscous. Body shortly pubescent.

Head (with mandibles) nearly twice as long as wide, a fourth wider than prothorax, eyes convex and prominent, genae evident, not quite as long as eyes, neck constricted at

sides, impunctate, antennae reaching basal third of elytra, surface closely punctate. *Prothorax* subcylindrical, two-thirds longer than wide, sides with a distinct border, hardly visible from above, slightly dilated at middle, where a long seta is present, gently sinuate at about a fourth from base, the hind angles projecting laterally, but somewhat indefinite; median line, hind transverse impression, and basal foveae all evident, though not deep, the foveae elongate, near the hind angles, surface closely punctate. *Elytra* only moderately convex, two and a quarter times wider than prothorax, four-fifths longer than wide, moderately dilated behind, and widest at a fourth from apex, which is truncate, with a short but sharp tooth on each side at the outer angle of the truncature; striae moderately deep and closely punctate, intervals a little convex, uniformly and fairly closely punctate, the punctures much smaller than those on the head and prothorax. Microsculpture isodiametric, fairly distinct on the prothorax and elytra, hardly visible on the head. Underside punctate, the sterna more coarsely than the venter.

About the same size as *flavipes* Wied., but blue in colour, the knees fuscous. The prothorax is evidently longer, and both it and the head are more coarsely punctate, the elytra more deeply striate.

Assam (*W. F. Badgley*), 1 ex. in the British Museum.

Drypta cyanopa sp. n.

Length, 11 mm.

Coloured like *D. aetheria*, except that the blue is slightly darker.

Head narrower, only as wide as prothorax, eyes much less prominent, the puncturation of the surface slightly finer. *Prothorax* much shorter, only a third longer than wide, more strongly dilated at middle, the lateral borders less distinct, basal foveae less evident, puncturation similar but a good deal less close. *Elytra* not quite twice as wide as prothorax, and as much longer than wide, the outer angle of the apical truncature obtuse, though sharp, the striae deep and much more strongly punctate, the intervals very finely and sparsely punctate. Microsculpture similar, though barely visible on either head or prothorax.

Bengal: Sardah (*F. W. Champion*), 1 ex. in the British Museum.

Desera.

Key to the Species.

1(2). Elytra bright metallic green, antennae and tibiae flavous, femora dark blue, elytra deeply striate, outer angles of the apical truncature angulate. Length, 10 mm. . . . . *nepalensis* Hope.

2(1). Elytra blue or greenish-blue.

3(4). Prothorax evidently depressed at sides, deeply constricted before base, elytra deeply striate, a sharp tooth on each side at the outer angles of the apical truncature. Length, 10 mm. . . . . *gestroi* Bates.

4(3). Prothorax vaguely longitudinally sulcate at sides and only lightly constricted before base, elytral striae not very deep.

5(6). Colour dark blue, greater part of joint 1 of the antennae, tibiae, and tarsi black or piceous, outer angles of the apical truncature of the elytra angulate. Length, 11 mm. . . . . *longicollis* Macl.

6(5). Colour blue to greenish-blue, sometimes with a brassy tint, joint 1 of the antennae (except at apex), tibiae, and tarsi ferruginous, outer angles of the apical truncature of the elytra shortly dentate. Length, 9 mm. *geniculata* Klug.